

What is claimed is:

1. A spark plug comprising:
a cylindrical metal housing;
5 a columnar center electrode insulated from said metal housing and supported inside said metal housing;
a ground electrode having a leg portion extending substantially parallel to an axis of said center electrode and bonded to said metal housing at one end, and an opposed portion extending from the other end of said leg portion
10 in a direction substantially normal to the axis of said center electrode so as to be opposed to a distal end of said center electrode; and
a columnar noble metallic firing tip bonded to at least one of the distal end of said center electrode and the opposed portion of said ground electrode so as to form a discharge gap,
15 wherein said noble metallic firing tip includes a protruding portion formed partly on an outer circumferential surface of said noble metallic firing tip so as to protrude in the direction substantially normal to the axis of said center electrode, and said protruding portion is disposed in confronting relationship via said discharge gap with a distal end of said opposed portion
20 of said ground electrode far from said leg portion.
2. The spark plug in accordance with claim 1, wherein a protruding length L1 of said protruding portion satisfies $0.01 \text{ mm} \leq L1 \leq 0.2 \text{ mm}$.
- 25 3. The spark plug in accordance with claim 1, wherein said noble metallic firing tip is made of an iridium (Ir) alloy or a platinum (Pt) alloy.
4. The spark plug in accordance with claim 1, wherein said noble metallic firing tip is formed by shearing a material rod into a piece having a
30 predetermined length.

5. A spark plug comprising:
a cylindrical metal housing;
a columnar center electrode insulated from and supported inside said metal housing;

5 a ground electrode having a leg portion extending substantially parallel to an axis of said center electrode and bonded to said metal housing at one end, and an opposed portion extending from the other end of said leg portion in a direction substantially normal to the axis of said center electrode so as to be opposed to a distal end of said center electrode; and

10 a columnar noble metallic firing tip bonded to at least one of the distal end of said center electrode and the opposed portion of said ground electrode so as to form a discharge gap,

wherein said noble metallic firing tip has two regions differentiated in surface roughness and respectively serving as a discharge surface forming
15 said discharge gap, and one region of said noble metallic firing tip has a surface roughness larger than that of the other region and is disposed in confronting relationship via said discharge gap with a distal end of said opposed portion of said ground electrode far from said leg portion.

20 6. The spark plug in accordance with claim 5, wherein a surface roughness difference between said two regions of said noble metallic firing tip exceeds 4 μm in a ten-point average roughness.

25 7. The spark plug in accordance with claim 5, wherein said noble metallic firing tip is made of an iridium (Ir) alloy or a platinum (Pt) alloy.

8. The spark plug in accordance with claim 5, wherein said noble metallic firing tip is formed by shearing a material rod into a piece having a predetermined length.

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9. A spark plug comprising:

a cylindrical metal housing;
a columnar center electrode insulated from said metal housing and supported inside said metal housing;

5 a ground electrode having a leg portion extending substantially parallel to an axis of said center electrode and bonded to said metal housing at one end, and an opposed portion extending from the other end of said leg portion in a direction substantially normal to the axis of said center electrode so as to be opposed to a distal end of said center electrode; and

10 a columnar noble metallic firing tip bonded to at least one of the distal end of said center electrode and the opposed portion of said ground electrode so as to form a discharge gap,

wherein said noble metallic firing tip includes a chamfered portion formed partly along an outer cylindrical periphery of a discharge surface and positioned closely to said leg portion of said ground electrode.

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10. The spark plug in accordance with claim 9, wherein a maximum curvature radius r_{max} of said chamfered portion satisfies $0.05 \text{ mm} \leq r_{\text{max}}$.

20 11. The spark plug in accordance with claim 9, wherein said noble metallic firing tip is made of an iridium (Ir) alloy or a platinum (Pt) alloy.

12. The spark plug in accordance with claim 9, wherein said noble metallic firing tip is formed by shearing a material rod into a piece having a predetermined length.